CLAIMS

1. Ophthalmic lens consisting of a substrate made of organic glass, of an abrasion-resistant coating, of a layer of impact-resistant primer and of an inorganic anti-reflective coating, characterized in that the surface of the said substrate is covered with the abrasion-resistant coating and in that the impact-resistant primer layer is inserted between the said abrasion-resistant layer and the anti-reflective coating.

2. Lens according to claim 1, wherein the substrate is chosen from:

(I) the glasses obtained by polymerization of diethylene glycol bis(allyl carbonate);

(II) the glasses obtained by polymerization of acrylic monomers derived from bisphenol A;

(III) the glasses obtained by polymerization of allyl monomers derived from bisphenol A.

3. Lens according to claim 1, wherein the substrate is chosen from:

(A) the glasses obtained from poly(methyl methacrylate);

(B) the glasses obtained from polystyrene resin;

(C) the glasses made of resin based on diallyl phthalate.

4. Lens according to claim 1, wherein the impact-resistant interlayer has an intrinsic Bayer value lower than or equal to 2, at a thickness of 3 μm.

5. Lens according to claim 1, wherein the impact-resistant primer is a thermoplastic or heat-curable polymer composition which has a solids content ranging from 5 to 20% by weight relative to the total weight of the primer composition.

6. Lens according to claim 1, wherein the thickness of the impact-resistant interlayer in the cured state is between 0.2 and 1 μm.

7. Lens according to claim 1, wherein the composition of the impact-resistant primer consists of a thermoplastic polyurethane resin obtained by reaction of a diisocyanate with a compound comprising a reactive hydrogen at each end.

8. Lens according to claim 1, wherein the composition of the impact-resistant primer consists of a heat-curable polyurethane resin obtained by reaction of a blocked polyisocyanate and of a polyol.

9. Lens according to claim 1, wherein the composition of the impact-resistant primer consists of a copolymer of acrylic and/or methacrylic monomers and of aromatic vinyl compounds.

10. Lens according to claim 1, wherein the composition of the impact-resistant primer consists of a polysiloxane.

11. Lens according to claim 10, wherein the composition of the impact-resistant primer contains, in a solvent medium, one or a number of silane hydrolysate(s) with an epoxy group containing at least one Si-alkyl group and containing no fillers.

12. Lens according to claim 1, wherein the hard abrasion-resistant coating is obtained by curing a composition containing:

a) colloidal silica which has a mean particle diameter of between 1 and 100 mμm;

b) a solvent;

c) a hydrolysate or a mixture of hydrolysates of silane compound(s) of formula:

$$R^1 - \overset{\overset{R^3{}_a}{|}}{Si} - (OR^2)_{3-a} \qquad (\alpha)$$

in which:

R^1 denotes an organic group containing an epoxy group;

R^2 is a hydrocarbon radical which has 1 or 2 carbon atoms;

R^3 is a hydrocarbon group which has from 1 to 4 carbon atoms, and a is 0 or 1 in value.

13. Lens according to claim 1, wherein the thickness of the abrasion-resistant layer, in the cured state, is between 1 and 15 μm.

14. Lens according to claim 12, wherein the composition of the abrasive-resistant costing has a colloidal silica content of between 0 and 40% by weight in the solids content.

15. Lens according to claim 1, wherein the anti-reflective coating consists of a mono- or multilayer film based on dielectric materials and deposited by vacuum deposition.

16. Lens according to claim 1, successively including :

a) a substrate made of glass obtained by polymerization of diethylene glycol bis(allyl carbonate);

b) a hard abrasion-resistant coating obtained by curing a composition containing, in methanol, colloidal silica and a hydrolysate of γ-glycidyloxypropylmethyldiethoxysilane;

c) an impact-resistant interlayer obtained by curing a composition containing, in methanol, a hydrolysate of γ-glycidyloxypropylmethyldiethoxysilane or of γ-glycidoxypropyl-trimethoxysilane;

d) a multilayer anti-reflective coating.

17. Lens according to claim 1, successively including :

a) a substrate made of glass obtained by polymerization of diethylene glycol bis (allyl carbonate);

b) an abrasion-resistant coating obtained by curing a composition containing, in methanol, colloidal silica and a hydrolysate of γ-glycidoxypropylmethyldiethoxysilane;

c) an impact-resistant interlayer obtained by 35 curing a composition containing 4,4'-dicyclohexylmethane diisocyanate and polyethylene glycol;

d) a multilayer anti-reflective coating.

18. Process for the manufacture of an ophthalmic lens as defined in claim 1, comprising :

- applying the abrasion-resistant coating onto the surface of the organic glass substrate,
- depositing the layer of impact-resistant primer is deposited onto the abrasion-resistant layer ; and
- depositing the anti-reflective coating is onto the impact-resistant primer.

19. Process according to claim 18, wherein the abrasion-resistant layer and the layer of impact-resistant primer are deposited by

centrifuging, by dipping or by spraying and in that the anti-reflective coating is applied by vacuum deposition or sol-gel deposition.

20. Process according to claim 18, wherein the abrasion-resistant and impact-resistant primer layers are pretreated using a surface activation treatment by a chemical or physical route.

21. Process according to claim 20, wherein the surface activation treatment is an alkaline chemical etching, an oxygen plasma treatment or an ion bombardment in a vacuum vessel.